

What Is Claimed Is:

1. An etching solution comprising:

distilled and/or deionized water, sulfuric acid and sodium metatitanate or potassium titanate.

2. An etching solution in accordance with claim 1 wherein the etching solution comprises distilled and/or deionized water in an amount ranging from about 0.5 L to about 1.5 L, sulfuric acid in an amount ranging from about 150 grams to about 450 grams and sodium metatitanate or potassium titanate in an amount ranging from about 10 grams to about 15 grams.

3. An etching solution in accordance with claim 2 further comprising a seed metal.

4. An etching solution in accordance with claim 3 wherein the seed metal is present in an amount ranging from about 0 grams to about 5 grams of bare aluminum.

5. A method of etching aluminum and/or an aluminum alloy comprising:

immersing the aluminum and/or aluminum alloy in a bath comprising distilled and/or deionized water, sulfuric acid, and sodium metatitnate or potassium titanate.

6. A method in accordance with claim 5 wherein the bath comprises distilled and/or deionized water in an amount ranging from about 0.5 L to about 1.5 L, sulfuric acid in an amount ranging from about 150 grams to about 450 grams and sodium metatitante or potassium titanate in an amount ranging from about 10 grams to about 15 grams.

7. A method in accordance with claim 6 wherein the bath further comprises a seed metal.

8. A method in accordance with claim 6 wherein the bath is maintained at a temperature ranging from about 120° F to about 180° F.

9. A method in accordance with claim 6 further comprising rinsing the aluminum and/or aluminum alloy with water after immersing the aluminum and/or aluminum alloy in the bath.

10. A method of etching stainless steel comprising:

immersing the steel in a first bath comprising sodium metasilicate, tetrasodium pyrophosphate, sodium hydroxide, nacconol and deionized water; and

immersing the stainless steel in a second bath comprising titanium dioxide and deionized water.

11. A method in accordance with claim 10 wherein the second bath comprises titanium dioxide in an amount ranging from about 0.5 pbw to about 6 pbw and deionized water in an amount ranging from about 2 pbw to about 10 pbw.

12. A method in accordance with claim 11 wherein the first bath comprises sodium metasilicate in an amount ranging from about 1 pbw to about 5 pbw, tetrasodium pyrophosphate in an amount ranging from about 1 pbw to about 4 pbw, sodium hydroxide in an amount ranging from about 0.5 pbw to about 2.0 pbw, nacconol in an amount ranging from about 0.1 pbw to about 1.0 pbw and deionized water in an amount ranging from about 90 pbw to about 95 pbw.

13. A method in accordance with claim 12 further comprising rinsing the steel in deionized water after immersing the steel in the second bath.

14. A method in accordance with claim 13 wherein the second bath is maintained at a temperature ranging from about 140° F to about 190° F.

15. A method in accordance to claim 13 wherein the steel is dried in an oven having a temperature less than about 140° F.

16. A method of etching titanium comprising:

immersing the titanium in a first bath comprising
hydrochloric acid, phosphoric acid and hydrofluoric
acid; and

immersing the titanium in a second bath comprising titanium
dioxide and deionized water.

17. A method in accordance with claim 16 wherein the second bath comprises titanium dioxide in an amount ranging from about 0.5 pbw to about 6.0 pbw, and deionized water in an amount ranging from about 2 pbw to about 10 pbw.

18. A method in accordance with claim 17 wherein the first bath comprises 38% hydrochloric acid in an amount ranging from about 350 ml to about 450 ml, 85% phosphoric acid in an amount ranging from about 35 ml to about 45 ml and 52% hydrofluoric acid in an amount ranging from about 10 ml to about 30 ml.

19. A method in accordance with claim 18 further comprising rinsing the titanium in deionized water after immersing the titanium in the second bath.

20. A method in accordance with claim 19 wherein the second bath is maintained at a temperature ranging from about 120° F to about 180° F.

21. A method in accordance with claim 19 wherein the titanium is dried in an oven having a temperature ranging from about at 200° F to about 250° F.